In the Claims:

This listing of claims will replace all prior versions and listings of claims in this application.

1-21 (Canceled).

22 (Currently amended). A miniaturized gas chromatograph comprising a miniaturized separation column and a miniaturized device for the storage and/or enrichment of molecules or atoms, or both, ~~especially for a miniaturized gas chromatograph,~~ characterized by a chamber with a filling material, the filling material comprising carbon nanotubes and/or carbon nanofibers, and wherein the filling material is covered by at least one layer of amorphous carbon, thus forming the chamber, and wherein the chamber comprises an inlet and an outlet for the delivery and extraction of a sample of molecules or atoms, or both, wherein the outlet of the chamber is directly connected to the separation column of the gas chromatograph.

23 (Currently amended). The miniaturized ~~device~~ gas chromatograph according to claim 22 characterized in that the filling material is porous.

24 (Currently amended). The miniaturized ~~device~~ gas chromatograph according to claim 22 characterized in that the chamber is formed on a carrier.

25 (Currently amended). The miniaturized ~~device~~ gas chromatograph according to claim 24 characterized in that the chamber is located on the surface of a carrier or that it is embedded in the surface of the carrier.

26 (Currently amended). The miniaturized ~~device~~ gas chromatograph according to claim 24 characterized in that the carrier is a silicon wafer.

27 (Currently amended). The miniaturized ~~device~~ gas chromatograph according to claim 22 characterized in that a heating unit is provided.

28 (Currently amended). The miniaturized ~~device~~ gas chromatograph according to claim 27 characterized in that the heating unit is located opposite to the side of the surface of the carrier with the chamber.

29 (Currently amended). The miniaturized ~~device~~ gas chromatograph according to claim 27, characterized in that the heating unit comprises a resistive heating element produced via thick-film or thin-film technology.

30 (Currently amended). The miniaturized ~~device~~ gas chromatograph according to claim 22 characterized in that a cooling unit is provided.

31 (Currently amended). The miniaturized ~~device~~ gas chromatograph according to claim 30 characterized in that the cooling unit comprises a Peltier-element.

32 (Currently amended). The miniaturized ~~device~~ gas chromatograph according to claim 30 characterized in that the cooling unit is located opposite to the side of the surface of the carrier with the chamber.

33 (Currently amended). The miniaturized ~~device~~ gas chromatograph according to claim 32 characterized in that the cooling unit is located in a recess of the carrier.

34 (Currently amended). The miniaturized ~~device~~ gas chromatograph according to claim 22, characterized in that the chamber is formed in a shape of a channel.

35 (Currently amended). The miniaturized ~~device~~ gas chromatograph according to claim 22, characterized in that the outlet of the chamber is connected to ~~the~~ an inlet of ~~a~~ the separation column.

36 (Currently amended). A process for the production of a miniaturized gas chromatograph comprising a miniaturized separation column and a miniaturized device for the storage and/or enrichment of molecules or atoms, or both, especially for a miniaturized gas chromatograph, characterized by the following steps :

a) Manufacturing the miniaturized separation column using microsystem technology,

~~a)~~b) Deposition of at least one layer of filling material, which comprises nanoscale carbon nanotubes, carbon nanofibers and/or fullerenes on to a carrier, ~~and~~

~~b)~~c) Covering of said at least one layer of filling material with at least one layer of amorphous carbon,

whereby the layer of filling material and the layer of amorphous carbon are deposited in such a way onto the carrier that a channel is formed between the carrier and the layer of amorphous carbon, the channel containing the filling material, and whereby two openings are structured into the carrier which can be used to connect the channel to the outside world, and

d) Connecting one of the openings to the inlet of the separation column.

37 (Previously presented). The process according to claim 36 characterized in that the layer of filling material and the layer of amorphous carbon are deposited via Plasma Enhanced Chemical Vapor Deposition (PECVD).

38 (Previously presented). The process according to claim 36 characterized in that the area of the carrier, where the layer of filling material is deposited, is predefined by a catalyst layer of structured transition metal, previously deposited on the carrier.

39 (Previously presented). The process according to claim 38 characterized in that iron, nickel or cobalt is used as the transition metal.

40 (Previously presented). The process according to claim 36 characterized in that a silicon wafer is used as a carrier.

41 (Currently amended). A method for the ~~storage and/or enrichment of molecules or atoms, or both, for the purpose of~~ analysis of ~~the~~ molecules or atoms wherein the molecules or atoms are directed into a chamber of a miniaturized device, said chamber comprising ~~said method utilizes a miniaturized device characterized by a chamber with~~ a filling material, the filling material comprising carbon nanotubes and/or carbon nanofibers, and wherein the filling material is covered by at least one layer of amorphous carbon, thus forming the chamber, and wherein the chamber comprises an inlet and an outlet for the delivery and extraction of a sample of molecules or atoms, or both; wherein the molecules or atoms are directed from the outlet to a miniaturized separation column.

42 (Previously presented). The method according to claim 41 characterized in that molecules or atoms are stored and/or enriched from a fluid stream.

43 (Previously presented). The method according to claim 42 where said fluid stream is a gas stream.